

CLAIMS

1. A method of manufacturing a compound, comprising:
an outer part forming step of forming a metal outer part in a
predetermined exterior form having a hollow space; and
5 a content material forming step of forming a content material in the hollow
space by using a metal matrix melt to be die-molded and a filler contained in the
melt.

2. A method of manufacturing a compound according to claim 1, wherein
10 the outer part is to be heated up by using induction heating.

3. A method of manufacturing a compound according to claim 1, wherein
the filler uses a hollow particle or a particle.
15 4. A method of manufacturing a compound according to claim 1, wherein
the filler uses a reinforcing fiber or a felt.

5. A method of manufacturing a compound according to claim 1, wherein
the filler uses a mixture of two or more of a hollow particle, a particle, a
20 reinforcing fiber and a felt.

6. A method of manufacturing a compound, comprising:
a first step of forming a metal outer part in a predetermined form having a
hollow space;
25 a second step of setting up the outer part on an outer part setter of a first
mold die;
 a third step of charging a filler in the hollow space by a predetermined
charging manner;

a fourth step of charging a metal matrix melt to be die-molded into a second mold die and pouring the melt from the second mold die into the hollow space of the outer part set up on the first mold die so that the melt can be impregnated in the filler, thus forming a content material; and

5 a fifth step of taking the outer part out of the first mold die after cooling down the content material formed.

7. A method of manufacturing a compound according to claim 6, further comprising a sixth step of pouring the melt from the second mold die into a
10 hollow space of another outer part set up on another first mold die different from the first mold die before moving to the fifth step after executing the fourth step, and forming a content material in the hollow space in the other outer part.

8. A method of manufacturing a compound according to claim 6, wherein
15 the outer part is heated up by using induction heating.

9. A method of manufacturing a compound according to claim 6, wherein the filler uses a hollow particle or a particle.

20 10. A method of manufacturing a compound according to claim 6, wherein the filler uses a reinforcing fiber or a felt.

25 11. A method of manufacturing a compound according to claim 6, wherein the filler uses a mixture of two or more of a hollow particle, a particle, a reinforcing fiber and a felt.

12. An apparatus for manufacturing a compound, comprising:

a first mold die having an outer part setter for setting up a metal outer part in a desired exterior form having a hollow space; and
content material forming means for forming a content material in the hollow space by using a metal matrix melt to be die-molded and a filler

5 contained in the melt.

13. An apparatus for manufacturing a compound according to claim 12, wherein the heater for heating up the outer part is structured by using induction heating.

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14. An apparatus for manufacturing a compound according to claim 13, wherein a gasket is arranged between the first mold die and the second mold die, and a filter is arranged between the outer part set up on the outer part setter and the melt charger.

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15. An apparatus for manufacturing a compound according to claim 14, wherein a filter is further arranged between the outer part and a fluid conduit port communicating with the outer part setter.

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16. An apparatus for manufacturing a compound, comprising:

a first mold die formed with an outer part setter for setting up a metal outer part in a desired exterior form having a hollow space in which a filler can be charged by a predetermined charge manner;

a second mold die formed with a melt charger for charging a metal matrix melt to be die-molded; and

melt impregnating means for pouring the melt from the melt charger into the hollow space of the outer part set up on the outer part setter, and forming a content material by impregnating the melt in the filler.

17. An apparatus for manufacturing a compound according to claim 16, wherein the first mold die is structured in plurality so that the melt can be poured therein, in order, from the melt charger.

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18. An apparatus for manufacturing a compound according to claim 16, wherein a heater for heating up the outer part is structured by using induction heating.

10 19. An apparatus for manufacturing a compound according to claim 16, wherein a gasket is arranged between the first mold die and the second mold die, and a filter is arranged between the outer part set up on the outer part setter and the melt charger.

15 20. An apparatus for manufacturing a compound according to claim 19, wherein a filter is further arranged between the outer part and a fluid conduit port communicating with the outer part setter.

21. A compound characterized by comprising:
20 a metal outer part in a desired exterior form having a hollow space; and
a content material formed in the hollow space by using a metal matrix melt to be die-molded and a filler contained in the melt.

22. A compound according to claim 21, wherein the filler uses a hollow
25 particle or a particle.

23. A method of manufacturing a compound according to claim 21, wherein the filler uses a reinforcing fiber or a felt.

24. A method of manufacturing a compound according to claim 21,
wherein the filler uses a mixture of two or more of a hollow particle, a particle, a
reinforcing fiber and a felt.

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25. A compound characterized in that:

a metal matrix melt to be die-molded is impregnated in the filler, a metal
outer part in a desired form having a hollow space being provided as a part
forming an exterior form as a charge vessel and as a product as to the filler and
10 the melt.

26. A compound according to claim 25, wherein the filler uses a hollow
particle or a particle.

15 27. A method of manufacturing a compound according to claim 25,
wherein the filler uses a reinforcing fiber or a felt.

28. A method of manufacturing a compound according to claim 25,
wherein the filler uses a mixture of two or more of a hollow particle, a particle, a
20 reinforcing fiber and a felt.